

REMARKS/ARGUMENTS

In response to the Office Action dated January 13, 2006, Claims 1-25 are now in this application. Claims 1 and 22 have been amended. Claims 24 and 25 have been added.

Claims 1-23 were rejected under 35 USC 103(a).

Claims 1-23 were rejected under obviousness-type double patenting.

Claim Rejections - 35 USC § 103

First Rejection: Claims 1-4, 6-13, 18, 22, and 23 are rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 6,321,134 (Henley et al.) in view of U.S. Patent No. 6,432,260 (Mahoney et al.).

Claims 1 and 22 have been amended to recite the subject matter of the high voltage wafer chuck of FIGS. 97 and 98. This feature is necessary to withstand the high bias voltages required for ion implantation. None of the references is related to (nor have any need for) such subject matter, and therefore Claims 1 and 22 as amended are patentable. Claims 2-4, 6-13 and 18 depend from Claim 1 and are therefore patentable upon the same basis. Claim 23 depends from Claim 22 and is therefore patentable upon the same basis.

Second Rejection: Claim 5 is rejected under 35 USC 103(a) as being unpatentable over Henley et al. in view of Mahoney et al., and further in view of U.S. Patent No. 6,643,557 (Miller et al.).

Claim 5 depends from Claim 1 and is therefore patentable upon the same basis. In addition, Claim 5 is patentable upon its own merits.

Third Rejection: Claim 14 is rejected under 35 USC 103(a) as being unpatentable over Henley et al. in view of Mahoney et al., and further in view of U.S. Patent No. 6,150,628 (Smith et al.).

This rejection is respectfully traversed. The annular insulating gap is on an external conduit of a reentrant toroidal path. Smith et al. is relied upon as showing this feature, but fails to do so, because there are no reentrant toroidal paths in Smith et al. and so there are no external conduits. Therefore, there is no annular insulating gap on an external conduit in Smith et al. Smith must therefore employ large magnetic cores 104, 106 surrounding his entire chamber to excite a plasma. The invention of Claim 14 does not require such a disadvantageous feature. Therefore, Claim 14 is patentable over the cited references.

Fourth Rejection: Claims 15-17 and 19-21 are rejected under 35 USC 103(a) as being unpatentable over Henley et al. in view of Mahoney et al., and further in view of U.S. Patent No. 5,571,366 (Ishii et al.).

The rejection of Claims 15 and 16 is respectfully traversed. Applicants increase plasma density in the process region overlying the workpiece by constricting the cross-sectional area of the toroidal path in the process region. The conservation of the current along the toroidal path causes the plasma ion density to increase proportionately to the constriction. The retractable wafer pedestal of Ishii et al. is cited in the rejection as teaching the ability to perform a similar restriction. However, Ishii has no toroidal plasma current and therefore he cannot achieve the same effect. His plasma source generates plasma in

the same volume that is affected by the height of his pedestal, and therefore the effect in Ishii is entirely different. Therefore, Claims 15 and 16 are patentably distinct from the cited references.

Claims 17 and 19-21 depend from Claim 1 and are therefore patentable upon the same basis.

Double Patenting

Claims 1-23 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 7, 10, 26, and 27 of U.S. Patent No. 6,438,126; or alternatively over claims 1, 2, 9, 12, 15, and 18 of U.S. Patent No. 6,468,388; or alternatively over claim 1 of U.S. Patent No. 6,494,986; or alternatively over claims 1, 2, and 4 of U.S. Patent No. 6,551,446 in view of Henley et al., Miller et al., Smith et al., and Ishii et al.

Applicants hereby submit a Terminal Disclaimer to obviate the double patenting rejection over U.S. Patent No. 6,438,126. Applicants submit herewith a Terminal Disclaimer to obviate the double patenting rejection over U.S. Patent No. 6,468,388. Applicants hereby submit a Terminal Disclaimer to obviate the double patenting rejection over U.S. Patent No. 6,494,986. Applicants submit herewith a Terminal Disclaimer to obviate the double patenting rejection over U.S. Patent No. 6,551,446.

Claims 1-23 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 5-8, and 38-42 of co-pending Application No. 10/646,458; or alternatively over claims 1-3 of co-pending Application No. 10/646,533; each in view of Henley et al., Miller et al., and Ishii et al.

Applicants submit herewith a Terminal Disclaimer to obviate the double patenting rejection over co-pending Application No. 10/646,458. Applicants submit herewith a Terminal Disclaimer to obviate the double patenting rejection over co-pending Application No. 10/646,533.

SUMMARY

In view of the foregoing corrections and remarks, it is respectfully requested that the rejection to the claims under 35 USC 103(a) and the double-patenting rejections to the claims be withdrawn.

If, However, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, the Examiner should telephone Robert Wallace at (805) 644-4035 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,



Dated: April 12, 2006

Robert M. Wallace
Reg. No. 29,119
Attorney for Applicants
Customer No. 0000044843

Robert M. Wallace
Patent Attorney
2112 Eastman Avenue, Suite 102
Ventura, CA 93003
(805) 644-4035